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ABSTRACT

Purchasing contributes significantly to an organization and to its business strategy only if its activities and contracts with suppliers are guided by support criteria for the final products that the organization sells. Outlined in this paper are four innovative purchasing strategies: capitation contracts; product life cycle cost contracts; affordability; and supply chain management. All these strategies are focused on the final products of the organization and are top-down approaches as they derive their goals and contracts from the organization's end markets. The strategies have unique information requirements that are very different in quality and characteristics from the needs of traditional purchasing systems; the information requirements are in some cases part of the advantages of the new strategies and in others problems with regards to implementation. Understanding the information requirements of the new purchasing strategies is a must for customers and suppliers alike. Information will be a resource as well as an entry barrier for suppliers. Suppliers that cannot invest in information or sophisticated information systems will not survive in this modern market. The purchasing strategies also have impact on information centers and libraries. Of particular importance is the emergence of electronic distribution which has profound effects on the supply chain of information. (Author/AEF)

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Final Product Strategies in Purchasing and Their Impact on the Information Needs of the Organisation

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Final product strategies in purchasing and their impact on the information needs of the organisation

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Abstract: *Purchasing must support the final products that the organisation sells in order to have a significant contribution to the organisation. Outlined are four innovative purchasing strategies: capitation contracts, product life cycle cost contracts, affordability and supply chain management. All these strategies are focused on the final products of the organisation. They are top-down approaches as they derive their goals and contracts from the organisation's end markets. The strategies have unique information requirements that are very different in quality and characteristics from the needs of traditional purchasing systems. The information requirements are in some cases part of the advantages of the new strategies and in others problems with regards to implementation. Understanding the information requirements of the new purchasing strategies is a must for customers and suppliers alike. Information will be a resource as well as an entry barrier for suppliers. Suppliers that cannot invest in information or sophisticated information systems will not survive in this modern market and disappear. The purchasing strategies also have impact on information centres and libraries. Of particular importance is the emergence of electronic distribution which have profound effects on the supply chain of information.*

Keywords: purchasing, capitation, life cycle cost, affordability, design to cost, supply chain, information requirements, user needs

1. Introduction

Purchasing contributes significantly to an organisation and to its business strategy only if its activities and contracts with suppliers are guided by support criteria for the final products that the organisation sells.

Targets such as 'buying cheap' or 'getting the best contracts with suppliers' themselves have no value. Purchasing has to understand the end markets in which the organisation sells its products and obtains its income, to know the contracts and prices in these markets and accordingly to derive its purchasing goals and forms of contracts.

This approach, which we call the final product approach, has led to the development of a number of innovative purchasing strategies. We will address four strategies: capitation contracts, product life cycle cost contracts, affordability and supply chain management.

2. Capitation contracts

Capitation is:

(1) contract;

(2) incentive methods;

(3) working policy with suppliers.

Capitation: providing all of the customers' needs during a certain period in return for a fixed sum which is independent (or partially dependent) on the quantity supplied, when the consumed quantity is not known in advance.

Logic and motive: adjusting expenditure to income, reducing risks. In many health systems the emphasis has moved from increasing income to reducing costs. This has considerably increased the importance of purchasing.

It does not make business sense to pay the suppliers a fee for a product or service when revenues do not move in parallel. The more products I consume the more I will pay, but my income will not rise accordingly. The discrepancy creates risk.

In the capitation agreement there is a reduced risk for the customer. We sell all the risk or part of it to the supplier. In the later case there is risk sharing. There are full and partial capitation contracts. The risks are both cost growth by itself and also cost growth beyond the growth of income.

In capitation the supplier forms very close ties with the organisation and with the organisation's aims and goals. The supplier and organisation are *us*, not *we* and *them*. Suppliers will not try to increase sales by increasing the number of quantities sold or unit prices but will work with the customer to make processes more efficient and to reduce costs. They now have an interest in reducing costs.

2.1. The benefits of costs reduction

(1) Reducing costs of materials due to quantity discount and being a sole supplier.

(2) There is no incentive for a supplier to sell unnecessary goods. He has incentives to encourage the customer's goals and to encourage cost effective usage of his products. The supplier is also an advisor. For example, in the case of the medical system the goal is to improve the patient's health.

(3) A huge saving in transaction and control costs of both parties. Transaction costs are usually valued at less than their real value.

(4) Reducing the number of suppliers with which the organisation works.

(5) The supplier will try to become more efficient and to reduce the organisation's costs.

(6) Economising the marketing costs of the supplier.

(7) The supplier has more predictability and certainty in the quantity and timing of supply (as opposed to spot orders).

Capitation leads to work procedures being changed, within the organisation and with its suppliers. Labour requirements will change. There will be fewer people working in daily transactions and control, accounting, purchasing (customer) and sales (supplier). The remaining workers will be of a higher standard and will perform more interesting roles.

Capitation will be throughout the whole system, in every supply chain. In the end, no one in the chain will receive any money if the final customer, the consumer, does not pay.

2.2. Problems

(A) If the consumption is greater than predicted, suppliers face financial risk. Possible solutions:

(1) contracts that share risk;

(2) cost reduction due to a capitation contract also benefits the suppliers and contributes to its stability.

(B) The supplier must monitor the customer's organisation logistics and consumption processes.

2.3. Requirements for implementing a capitation contract

- Trust between the parties;
- A sophisticated information system;
- Actuarial information. This information allows us better segmentation of data. The segmentation helps us to draw up more clever contracts;
- Supplier having good monitoring systems.

2.4. When implementation would be feasible and worthwhile

(1) In cases where we want to match expenditure to income, to reduce the risk level, to reduce costs.

(2) In cases where there is no direct relationship, through the Bill of Materials, between inputs (such as raw materials) and the end product that the client sells, such as medicines versus medical care.

(3) When the customer has no interest or capability to consume more inputs than what is being supplied due to a capitation contract. Selling more final products will not necessarily mean consuming more inputs.

(4) If the percentage of the direct cost in supplies is low, the risk of the supplier being capitationally abused will be low.

Examples: insurer with pharmaceuticals, computer services, information services, bank with forms. In the final case capitation contracts will lower transaction costs that in cheap products are a considerable percentage of the product price.

3. Life cycle costing

Life cycle costing is also called TCO — total cost of ownership.

Life cycle costing (for the customer) includes cost of purchasing, operation (labour and other inputs), maintenance, stoppages and taking out of use. The manufacturer also has manufacturing and development costs. The

concept is that when purchasing we should look at life cycle costs and not only at purchasing costs. We can buy an item cheaply and pay in high operations, maintenance and stoppages costs which mean that we did not choose the correct alternative.

All costs will be combined into one parameter — the life cycle cost of the product/system. Very often we have an interaction and trade-off between different costs. For example electrical appliances which are expensive when purchased but economical in energy: expensive vehicles but with cheap maintenance and running costs (petrol). Expensive automated machine which needs little labour to operate as compared to a less expensive machine which needs far more manual work to run. In complicated systems the purchasing costs of an item are only 25–50% of the life cycle cost.

3.1. Problems

The price of the whole system, the LCC, is not known. We only know the purchasing costs. The other costs are not known. They are spread out over a period of years, which may be many years, and spread throughout several departments in the organisation. Every department values costs according to different methods or data. One of the main problems in the model is estimating future costs (in fact, all costs except the purchasing costs).

Several methods

(1) Receiving data from the manufacturer. He should be more aware of maintenance and operational costs than anyone else and how many stoppages will occur (usually defined for a year). Obtaining data on expensive equipment can be very expensive (millions of dollars).

(2) Obtaining historical data if we have similar or exact equipment. If the equipment is only similar, or is from a previous generation, then it will also be more of a problem to estimate costs.
New equipment can have better theoretical performance, making it more complicated and less reliable or more sensitive, with larger life cycle costs.

3.2. Further problems with using this model

- Accounting procedures prevent a realistic assessment of LCC;
- Budgetary procedures prevent transferring budgets between departments and spreading over a number of years;
- Every department, including decision makers, looks at its budget and does not want to reach global optimisation.

The next stage after choosing an alternative is putting elements of our study into the contract agreed with the manufacturer. After the manufacturer supplies us with data on his products, we will demand that he take responsibility for any non-fulfilment. The contract must include a penalty should the performance of the machinery deviate from the original data given by the supplier. The penalties will depend upon the nature of the organisation's operations and losses incurred due to the machine stoppages. The contract will, in fact, connect the supplier to the final product of the organisation.

An Israeli company in the defence sector paid millions of dollars to the Pentagon because it presented costs data that were too low.

3.3. Requirements for implementing a product life cycle costing model

Information about the costs is in the later stages of the product (especially in operation and maintenance).

3.4. When implementation would be feasible and worthwhile

- Whenever the purchase of capital equipment is large enough to justify investing in LCC procedures.
- Whenever one expects that the later costs will be a very significant part of the LCC.

4. Affordability

Affordability is a concept which states that the products must be affordable to the customer in addition to its technical and functional requirements. The product's cost constitutes part of the specifications and is a constraint in the design process which is known as design to cost (DTC) and is not a result of the process. The cost becomes a decision variable in the design process.

In a usual design process the product is designed first and priced afterwards. If the product is too expensive it is returned to the designer to try to reduce costs. Along with the pressure of time, this is difficult and expensive. Most product or system costs occur in advanced stages of the life cycle but are determined in the early stages of design.

- In DTC the product's cost goals are derived from the business plan before design is commenced;
- The goals are allocated to the product sub-systems;
- The designers know, from the beginning, the product costs targets and carry out the design accordingly.

They work closely in concurrent engineering in IPT with purchasing and manufacturing people in order to reach these goals;

- If in a certain configuration they do not reach the cost goals, they change design or costs allocations in the system;
- The method is not a miracle cure. It is possible that at the end of the preliminary design process the cost goals will not be met. The designer can say, for example, that he surpassed the cost targets by 30%;
- Even in this particular case we benefit, as opposed to the present situation. The designer can update the initial design to reduce costs, to justify that the product's performance has been changed to reach the cost target. At this stage there is more time to do this. At the same time, marketing will check whether surpassing the cost will affect the business plan.

It is better to be aware as early as possible that the cost targets will not be met, rather than when we are further ahead with the product and have an emotional, marketing and manufacturing commitment.

4.1. When implementation would be feasible and worthwhile

- In new products;
- In existing products that have marketing problems and where one believes that this is due to the product being too expensive vis a vis its performance.

4.2. Problems

DTC design process is longer and more expensive than normal design. One speaks generally of a 20% increase in costs.

Sometimes there is a contradiction between cost effectiveness and affordability requirements. If cost targets are not realistic, the design chosen should be affordable but not cost effective. I would prefer a machine costing $1m with a $10m life cycle cost to a $2m machine with an $8m life cycle cost, as I now have a budget of only $1m.

5. Supply chain management

Supply chain management is the management and control process of the flow of products in the organisation, starting from the supply of materials to the organisation's customer and ending up at the supply of finished products to the organisations' customers. The purpose is to maximise the value of all members of the chain, to gain competitive advantages and to carry this out regardless of organisational or global limits.

The supply chain consists of:

(1) The suppliers that supply raw materials to the manufacturer;

(2) The manufacturer that converts raw materials into finished products;

(3) The manufacturer's distribution network of finished products to customers;

(4) The organisation's customers;

(5) Outsourcing companies;

(6) Additional organisations that are involved in the process such as the forwarder, customs broker, agents and distributors.

Increasing competition and globalisation have forced organisations to view their supply chain to and from the organisation and to combine as one network. The chain, if managed properly, will create a competitive advantage through low costs, larger availability of products and improved service. Organisations understand that examining, analysing and establishing an overall policy enables achieving much better results than viewing each system as a separate entity (the problem of partial optimisation).

5.1. Contracts

Working within the supply chain management concept requires contracts between all members of the chain. The contracts will not be simple contracts of products (or services) exchanged for price but will be multiple channel contracts which will stipulate which party holds stock and how it will be kept, guaranteed supply time, stringent quality demands and information requirements. The mutual high dependency of all chain members means having contracts that stipulate the compensation mechanism if one of the members fails.

5.2. Information

Information is of critical importance as the supply chain enables cost reduction and greater efficiency within its member organisations but increases mutual dependency of chain members. Information requirements — amount of information, updating of information, information reliability — are all very high. Organisations belonging to the supply chain exchange sensitive commercial information which, until recently, was kept strictly in the organisation, such as the long-term supply and demand forecast and the reasoning behind it. In more sophisticated supply chains the information is transferred between members by EDI, industry EDI and private EDI of the system

members.

5.3. The strategic meanings of supply chain management

In supply chain management each customer expects a lot more from its suppliers than simply receiving products or services for money.

Relations between the customer and supplier are multi-channelled and include subjects such as stock policy, information requirements and the linking of information systems and delivery promises.

The result is setting up entry barriers for suppliers of goods and services. Manufacturing organisations, forwarders and distribution companies must invest in sophisticated information networks or will disappear from the market. Companies with an isolationist and closed policy will suffer from increased and growing logistic costs which will cause inferiority vis à vis their competitors.

As a result of supply chain, policy will not only be determined on an organisational level but also on an inter-organisational level. In most supply chains there is one dominant player who determines or considerably influences policy. This player is mostly, but not always, the dominant customer.

6. Impact on information requirements

The concepts that we outline originate from commercial considerations and not from the information system side. However, if we study what is needed to implement them and the results of this implementation, it becomes apparent that they have a significant impact on the information needs within the organisation.

The purchasing strategies outlined need meaningful information of different quality and characteristics than today's purchasing systems. Every method has it own special requirements. In capitation we need exact and up-to-date actuarial information of consumer history consumption and suitable control systems which will prevent the method being misused. On the other hand, one of the main advantages of capitation is the reduced need for information of the organisation's routine transactions and activities, therefore reducing transaction costs.

The strategies of life cycle costing and affordability require not only purchasing information but also information pertaining to the life cycle costs of the product. Most of the information is of an uncertain nature but an accurate estimation is necessary for choosing the right equipment. A lot of this information is received from suppliers and their contracts which define the quality of information received and the fines for inaccurate information.

Supply chain management requires a large amount of up-to-date and reliable information from parties outside the organisation. The information is also highly secretive and until recently did not leave the organisation. Many companies transfer the information through fast electronic channels which link the organisations as part of the need for up-to-date information. The information element is so important that without the right information it is not possible to implement the methods or the implementation will fail.

Information will be a resource as well as an entry barrier for suppliers. Suppliers that cannot invest in information or sophisticated information systems will be thrown out of the market and fade.

In the forthcoming lecture we will discuss in detail and define the exact information needed for each purchasing strategy, how it can be achieved and the value of this information. This will be done in comparison to the information needs of traditional purchasing methods.

7. Impact on management

The organisation will have to become more intricate. Even though manpower may need to be reduced, workers' quality and performance will have to be increased. Employees will be dealing more with strategies and less with daily routine and transactions.

8. Impact on information centres

We are starting already to see implementations of final product purchasing strategies in the purchasing and selling of information. Knight Ridder (KR), owner of the Dialog system, now offers the use of its Dialog information services on a semi capitation basis. Subscribers can pay KR for information: a global sum which is a little higher than their expenditures on the Dialog system in the previous year. In return the subscriber is entitled to consume about double the amount of information it purchased last year. Selling and purchasing information on a capitation basis is possible because the lion's share of the costs of producing information is fixed, indirect costs. The proportion of direct costs to total costs is very small. Most of the direct costs are in the distribution stage. Due to electronic commerce and the Internet, we expect distribution costs of information to be reduced, making capitation arrangements even more worthwhile.

Information is a prime candidate for electronic commerce and distribution through electronic networks such as the Internet. We expect that electronic distribution will alter fundamentally not only the supply chain in information but the nature of the information product itself and the economics of information. A full description of these changes is outside the scope of this paper. Certain costs elements of producing and distributing infor-

mation will disappear or decrease sharply, such as paper, printing, inventory and physical distribution. The reduced costs and prices will encourage greater supply of information, overwhelming the electronic supply chain.

As more and more information is provided free through the Internet, the pricing of information products will become a complicated issue for producers, providers and purchasers such as information centres and libraries. A possible consequence of this development is the use of fee for performance contracts in the purchase of information. Organisations will still be ready to pay a premium for proprietary information but only if it delivers the results. The information professional will have to master commercial and negotiations skill and have a better knowledge of his organisation in order to negotiate such contracts.

9. Conclusion and recommendations

The new final product purchasing strategies will have a profound effect on the information requirements in organisations, on processes within the organisation and between organisations, and on management and workers' behaviour. These changes and the emergence of electronic commerce and distribution through networks will also have an impact on the information centre and information specialists. In the future the information requirements of processes and contracts should be defined in a much earlier stage than today's by users and information professionals alike. The information centre and information professional should carefully assess and adapt themselves to the new realities.

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